

Atty. Docket No. 0039-7292-2 DIV

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF:

KAORI UMEZAWA ET AL.

: GROUP ART UNIT: 2814

SERIAL NO: 09/358,388

RCE FILED: SEPTEMBER 29, 2003

: EXAMINER: MAI, A.

FOR: METHOD OF MANUFACTURING :
A SUBSTRATE HAVING
SHALLOW TRENCH ISOLATION:

DECLARATION UNDER 37 C.F.R. § 1.132

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR

1. Now comes Masakazu Kimura, residing at 2-15-14 Hirokawa, Hamamatsu 432-8013, Japan.
2. I am a Professor at Innovative Joint Research Center, Shizuoka University.
3. I have received a Ph.D. degree in Engineering from Tohoku University.
4. I have been employed by Innovative Joint Research Center, Shizuoka University since 1985 and was engaged in the field of semiconductor physics and semiconductor devices.
5. I have read all of the specification and the claims as presented in the amendment filed on July 27, 2004. I have also fully read the **Journal of Non-Crystalline Solids** article attached to the Amendment filed November 7, 2002, that is titled "Raman Spectra of Binary High-Silica Glasses And Fibers Containing GeO₂, P₂O₅, And B₂O₃," as well as the Office Action mailed July 9, 2004, that discusses this article at page 15, lines 11-16.

6. It is clear to me, as it would be to any person having ordinary skill in the art, that the statement at page 15, lines 11-16 of the outstanding Action that "there is no clear indication that the oxide materials of Figs. 6A or B are that of pure fused silica because Figs. 6A-B are more similar to the Raman Spectrum of doped silica, Figs 3 and 4 than that of pure silica, Fig. 1" reflects a total lack of understanding of what each of these referenced Figures show. Clearly, if the silicon oxide film contains boron, the Raman spectra should have a peak at 670 cm^{-1} (See Fig.3 and table 3 of **Journal of Non-Crystalline Solids**). Further, if the measured silicon oxide film contains phosphorus, the Raman spectra should have a peak at 520 cm^{-1} (See Fig.4 and table 4 of **Journal of Non-Crystalline Solids**). As no peak at 670 cm^{-1} or 520 cm^{-1} appears in Figs. 6A and 6B of this application unlike the showing of Figs. 3 and 4 of the article, it is clear that the silicon oxide film of Figs. 6A and 6B has no dopant of boron or phosphorous.

7. The outstanding Action appears to base its conclusion that "Figs. 6A-B are more similar to the Raman Spectrum of doped silica, Figs 3 and 4 than that of pure silica, Fig. 1" on the observation that Fig. 1 of the article shows of a spike at 485 and a peak at 440 cm^{-1} that are said to be lacking in Figs. 6A-B, that is said to show a peak at approximately 490 cm^{-1} .


However, the person of ordinary skill in the art would realize that the arbitrary units for intensity in these two different Figures are just that and that the scale for wavelength is also not intended to be highly precise. They would further note that the leading spike of the series of spikes ranging between about 440 to just under 500 cm^{-1} are in the correct area to correspond with the leading spike and trailing peak noted in the outstanding Action. More importantly, it is clear to those of ordinary skill in the art that if the silicon oxide film contains boron, the Raman spectra should have a peak at 670 cm^{-1} and if the measured silicon oxide film had contained phosphorus, the Raman spectra should have a peak at 520 cm^{-1} , all as noted above. The precise manner that the showing of Figs. 6A-B of the application are being alleged to be

closer to Figs. 3 and 4 of the article is not set forth in the outstanding Office Action and not clear from the Figures themselves.

6. The declarant declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful and false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Masakazu Kimura

Date: October 12, 2004



Name